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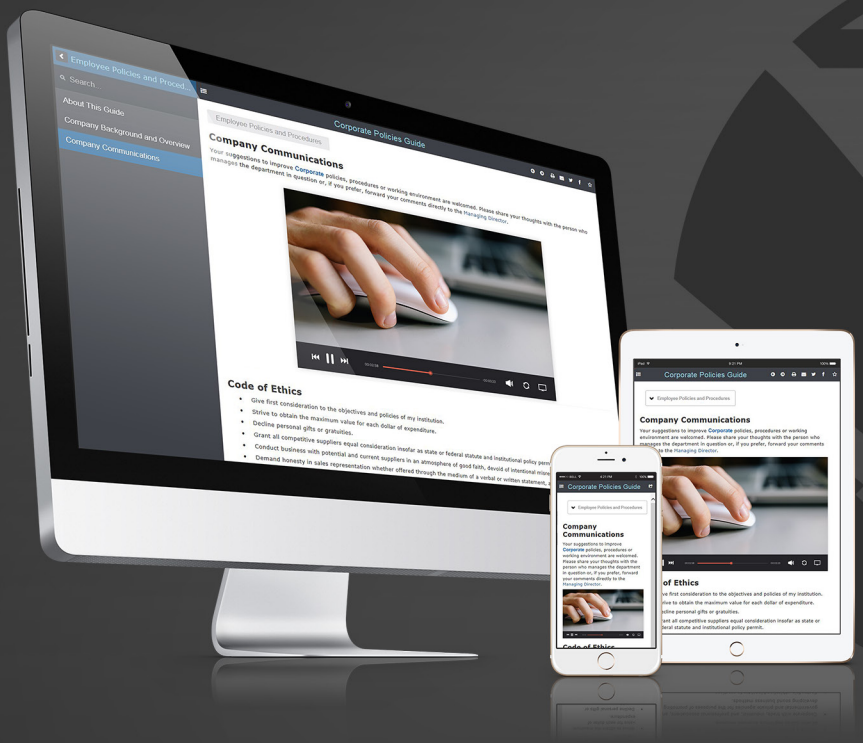

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A Note from the Editor

The July/August 2016 issue of *Intercom,* sponsored by Adobe, provides an assortment of articles on topics including writing and editing, simplified technical English, content marketing, mobile change, and teaching practice with theory. In the lead article, Ferry Vermeulen offers a technique he calls the "thumbs-up" approach to writing clearer documentation. By applying the ASD-STE100 Simplified Technical English Specification in three steps, he explains how technical writers can improve the quality of translated content, decreasing costs and creating a better user experience.

In "Changing the Rules in an Old, Established Game: Editing in Engineering-Based Government Agencies," Sarah Buttram analyzes the challenges editors face when they are embedded within engineering agencies, and she offers editors' advice and acceptable approaches for working with engineers, such as using templates and styles, using the proper tone with scientific authors, and explaining the editing process.

Have you been asked to write email copy for your job? Many technical communicators are working in content marketing for products and services, and this often means writing mass emails to reach a target audience. In her article "The Subject Line: Are You Doing It Wrong?" Danielle Karr provides advice on how to improve and perfect an email subject line.

STC Fellow Neil Perlin has written an overview on how he thinks mobile will change technical communication, including what technical communicators need to do today to prepare and what they need to start thinking about for the future. He advises us to rethink business models and what "mobile" means, focusing on a mobile-first mentality. He also suggests that technologies such as "true" apps, new interfaces, adaptive content, content customization, and cross-device state preservation will lead the way with tomorrow's technical communicator.

And related to what tech comm professionals need, Tiffany Price calls on professors in technical and professional communication classrooms to stress and balance the importance of theory and practice, so new technical communicators in the workforce are prepared for the global economy.

This issue also includes contributions by two guest columnists for the Standard Deviation and the Ethics columns. And in the Society Pages, two students award winners share their experiences creating infographics for the Student Infographic Competition awarded at the Summit in Anaheim, CA, in May.

Deadlines have been posted for STC's academic awards—Sigma Tau Chi and Alpha Sigma Honor Societies, the Jay R. Gould Award, and the Ken Rainey Award. And it's time to start working on your Associate Fellow and Fellow applications. Deadlines and instructions are included in this issue. I hope many of you will read the qualifications and nominate someone for these prestigious awards.

—Liz Pohland
liz.pohland@stc.org

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How to Implement Simplified Technical English and Write Clearer Documentation with the

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Thumbs-Up Technique

By FERRY VERMEULEN

SIMPLIFIED TECHNICAL ENGLISH (STE) is generally considered important for writing clear and unambiguous content, mainly for user instructions like maintenance manuals. However, many technical writers experience specific problems when implementing STE.

Although theoretically possible, STE is not an easy language to learn by self study. The ASD-STE100 specification is a complex document and many writers have admitted that a disadvantage is the extensive learning time (Disborg, 2007).

Software tools, like the MadCap Flare API and HyperSTE, can support a technical writer in writing in Simplified Technical English. When using these kind of tools, knowledge of Simplified Technical English is a must.

As a first step to apply Simplified Technical English, without going through the full learning curve, I developed the "Thumbs-Up Technique." By applying the steps as described in the technique, you will improve the quality of the content you translate, whilst decreasing translation costs and creating a better user experience.

Concepts that make up the "Thumbs-Up Technique"

English is a very rich language. Many words are redundant or ambiguous and English grammar is complex. English is the language most used for writing technical documentation and many translators are involved in translating documentation into English (AST-STE100). However, English is often not the native language of readers of technical documentation. Most readers have some knowledge of English that is limited, and they are easily confused by complex sentence structures and by the number of meanings and synonyms English words can have (MAINTworld).

Simplified Technical English was developed to help users of English-language documentation understand what they read, particularly in multinational programs. The ASD-STE100 Simplified Technical English Specification has been developed, which contains two parts: STE-Writing rules and the STE-Dictionary.

The Thumbs-Up Technique is based on the ASD-STE100 specification and contains a simplified version of the two parts of the specification.

Instructions to Implement Simplified Technical English

There are three steps that make up the Thumbs-Up Technique:

1. Delete any non-relevant information and determine only relevant information.
2. Use the online STE-Dictionary and check the approved meaning of words.
3. Modify your sentences into simple and comprehensible language, based on the suggestions made by the online STE-Dictionary.

Step #1: Delete any non-relevant information and determine relevant information

Much instructional content, like tasks and warnings, contains information that is not relevant for the end user in order to complete his or her task.

In the example below, the words highlighted in red represent information that is not relevant in order to clearly warn the user. The green words highlight the information the user really needs to know in order or to be warned properly.

> The synthetic lubricating oil used in this engine contains additives, which if allowed to come into contact with the skin for prolonged periods, can be toxic through absorption.

Step 1 of the Thumbs-Up Technique is about getting rid of all non-relevant information and only selecting information that is relevant for the end user. You can distinguish these two types of information by asking yourself, "Does the user really need this word/information in order to complete the task?" If not, those words should be removed.

Step #2: Use the online STE-Dictionary and check the approved meaning of words

The words you choose in documentation can have a big impact. For example, the word "set" can mean: "to diminish or decline," "fixed and rigid," or "to put in a specific position." Translating in a clear, concise, and consistent manner is of great importance. As another example, the sentence "Turn off the engines not required" could mean: "Turn off the engines that are not required," or "Turning off the engines is not required."

Challenge: Here's another an example. What meanings could the phrase "Cut the power" have?

These dual and even multiple meanings are why the ASD-STE100 specification contains a dictionary (part 2 of the standard). The dictionary is a list of just 850 words that are allowed to be used. The dictionary includes entries of both approved and unapproved words. The approved words can only be used according to their specified meaning. For example, the word "close" can only be used in one of these two meanings:

1. To operate a circuit breaker to make an electrical circuit.
2. To move together or to move to a position that stops or prevents materials from going in or out.

So the word "close" may only be used as a verb and not as an adverb. "Do not go close to the test rig during the test" is therefore an unapproved use of the word close.

Usually, each word is permitted for only one part of speech. For example, the dictionary specifies the word "oil" as a noun. Therefore, "oil" must not be used as a verb:

- "Oil the valve" is not permitted, because in this sentence "oil" is a verb.
- "The oil is dirty" is permitted, because in this sentence "oil" is a noun.

The use of approved and unapproved words is summarized in the following four writing rules:

1. Choose only words from the dictionary.
2. Use approved words only as part of the given speech.
3. Keep the approved meaning of a word in the STE-Dictionary. Do not use the word with any word or meaning.
4. Only use those forms of verbs and adjectives shown in the STE-Dictionary.

You can check whether a word is approved or unapproved by using the online STE-Dictionary, accessible through *http://instrktiv.com/en/simplified-technical-english/*. When you can access the online dictionary, perform the following actions to check the approved/unapproved meaning of a word:

1. Login to the online STE-Dictionary.
2. In the **Search** field, type the word that you want to check (e.g., type ENSURE).
3. Click **OK**. All entries which contain ENSURE are marked.
4. Select the approved word to use in your documentation (see the explanation below).

When searching for a specific keyword, everything in CAPITAL letters is approved in Simplified Technical English. Keywords in lowercase show that you must use another word or a different construction.

You will find the following information in the four columns:

1. *Keyword (part of speech):*
   Use an approved word only as part of the speech shown. Every approved word in STE is permitted only as a specific

Keyword (part of speech)	Approved meaning/ ALTERNATIVES	APPROVED EXAMPLE	Not approved
acceptance (n)	ACCEPT (v)	BEFORE YOU ACCEPT THE UNIT, YOU MUST DO THE SPECIFIED TEST PROCEDURE.	Before acceptance of unit, carry out the specified test procedure.
ACCESS (n)	The ability to go into or near	GET ACCESS TO THE ACCUMULATOR FOR THE No. 1 HYDRAULIC SYSTEM.	
accessible (adj)	ACCESS (n)	TURN THE COVER UNTIL YOU CAN GET ACCESS TO THE JACKS THAT HAVE "+" AND "-" MARKS.	Rotate the cover until the jacks marked by + and - are accessible.
ACCIDENT (n)	An occurrence that causes injury or damage	MAKE SURE THAT THE PINS ARE INSTALLED TO PREVENT ACCIDENTS.	

word type. For example, "ACCESS" is only permitted as a noun (the access), but not as adjective (accessible). There are eight parts of speech used in STE: verb (v), noun (n), pronoun (pn), article (art), adjective (adj), adverb (adv), preposition (pre), and conjunction (con).

2. *Approved meaning/ALTERNATIVES:*
   This contains the meaning of an approved keyword used in STE, as some words can have more than one meaning in everyday English. For unapproved words, this column lists approved alternatives. If a Technical Name or a Technical Verb is used in an approved meaning, this word is identified as (TN) or (TV).

3. *APPROVED EXAMPLE:*
   This column shows how an approved word can be used correctly, or how to use the suggested approved alternatives to replace unapproved words.

4. *Not approved:*
   This column gives examples of text that is not written in STE and is using an unapproved keyword.

Let's go back to the example I used in Step #1. After putting the green highlighted words in the online STE-Dictionary, I found the following approved words:

Used word	Approved word
Oil	Oil (TN)
Engine	Engine (TN)
Skin	Skin
Toxic	Poisonous
Absorption	Absorb (v)

Step #3: Modify the sentences into simple and comprehensible language, based on the suggestions made by the online ST-Dictionary

This step contains part 1 of the ASD-STE100 Simplified Technical English Standard: the writing rules. There are two things that help to modify sentences toward STE:

1. Look at the sentences in the APPROVED EXAMPLE column of the online STE-Dictionary.
   The writing rules have been applied to all these sentences. Without knowing all 66 writing rules, it is possible to copy and paste commonly used sentences from this column or imitate the way the sentences are built and create your own sentences.
2. Present the crux of the information and convey it in simple and comprehensible language.
   When writing in a functional controlled language, there are specific rules for text functions such as instructions and results or warning messages. Here are two simple examples for functional controlled language rules:

Text function: Instruction
Pattern: Verb (infinitive) + article + object + punctuation mark.
Example: Click the button.

Text function: Result
Pattern: Article + object + verb (present tense) + punctuation mark.
Example: The window "Expense Report" appears.

In both examples, the crux of the information is presented and conveyed in a simple and comprehensible language. Keep this in mind when modifying your sentences.

Let's go back to the example from step #1. The text has been modified to:

> Do not get the engine oil on your skin. The oil is poisonous. It can go through your skin and into your body.

As can be seen, fewer words have been used compared to the original text.

Challenge: Modify the following sentence into Simplified Technical English.

> Open a new email and after you have added your text, you can click the send button.

FERRY VERMEULEN, MSc. *is founder and director of business development at INSTRKTIV in Berlin, Germany. INSTRKTIV helps companies and brands produce technical documentation. His company stands for content quality, both in terms of usability and liability. The manual as a legal document, promoting safe and proper use, is at the core. Ferry has been involved in tech comm since 2006. Over the years, he gained knowledge through training and education on European and U.S. legislation regarding instructions, usability, UX, Simplified Technical English, single sourcing, content management, MadCap Software and SCHEMA software, Information Mapping, and minimalism in techcomm. You can read more of Ferry's thoughts on usability in techcomm on his blog, The Man-Machine, at* http://instrktiv.com/en/blog/.

REFERENCES

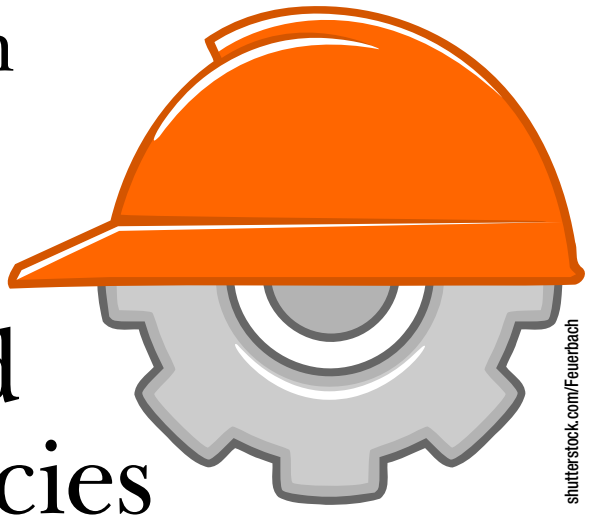
AST-STE100. "The official home of ASD Simplified Technical English, ASD-STE100 (STE)." 2016. Retrieved from *www.asd-ste100.org/.*

Disborg, Karin. Master's thesis in Cognitive Science Linköping University, Department of Computer and Information Science. "Advantages and disadvantages with Simplified Technical English." 18 October 2007. Retrieved from *http://liu.diva-portal.org/smash/get/diva2:16816/FULLTEXT01.*

MAINTworld. "The Role of Simplified Technical English in Aviation Maintenance." 6 May 2013. Retrieved from *www.maintworld.com/HSE/The-Role-of-Simplified-Technical-English-in-Aviation-Maintenance.*

Changing the Rules in an Old, Established Game:

Editing in Engineering-Based Government Agencies



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By SARAH M. BUTTRAM | *STC Member*

THERE HAVE BEEN TIMES in my editing career where I have forgotten that my chosen profession has not always been recognized or found to be prestigious. This lack of recognized historic value has caused strife when working in industries with recognized rules, such as engineering firms (Staples, 1998). Finding a way to change the rules in an old, established game can be difficult, but the result can be highly rewarding. Learning how to guide engineers and government officials is not something for the editor who is quick to quit. Time and dedication, along with patience and understanding, are necessary to teach these highly educated people that technical editors are here to help. This is one place where petting egos will pave the way to prosperous careers.

Looking Back—A Historical Perspective

To better understand why editing is so often overlooked, I researched the history of technical editing. What I found was shocking. When I began my career as a technical writer/editor in 2007, the U.S. Department of Labor still did not formally recognize my job title. In fact, the technical writing profession was not officially recognized until the 2010 edition of the *Occupational Outlook Handbook*.

Evolved from a Need for Accuracy—Editing as a Collateral Function

Despite its recent official recognition, the technical communication profession has been around since the invention of the printing press and the press's ability to quickly produce books in great numbers. This speed increased the number of errors; and the accuracy, or inaccuracy, of a book affected the reputation of the printing companies (Malone, 2006). With the printing companies' reputation at stake, a newfound endeavor for accuracy created the opportunity for the first editors. Yet even in this essential role working toward the accuracy of printed works, technical editors were held at a lower status to that of engineers or doctors. Most technical editors performed editing as a collateral function to that of their primary prestigious career.

Although editors continued to hold positions in the printing industry, the role grew rapidly alongside the technological advances society was making after World War II and the signing of the G.I. Bill. These advancements required documentation, which started as a secondary responsibility of the technologist since highly educated engineers deemed the task of writing to be unworthy of their time (Pringle & Williams, 2005).

This disdain for technical editing was apparent within the community of college-educated writers as well. At this time, classically educated writers found writing technological documentation to be beneath them. Since they could not receive recognition and accolades for this type of work, they avoided these positions (Staples, 1998).

Prestige in Academia—Technical Communication in the Curriculum

The lesser prestige of technical writing was apparent not only in industry, but also in academia. Universities taught technical communication as "Engineering English," and the responsibility of teaching these classes was relegated to student teachers or professors lacking tenure. In the 1800s, technical writing began to surface as a necessity for medicine, agriculture, and other scientific texts (Pringle & Williams, 2005). Slowly, the profession grew to require more education in English as well as a rudimentary understanding of the sciences. An increase in engineering students caused an increase in technical communication course participants (Staples, 1998). This continued to progress—albeit slowly—into a full-fledged curriculum, degree field, and eventually the inclusion of the profession in the *Occupational Outlook Handbook*, thanks in part to the efforts of the Society for Technical Communication.

Gaining Acceptance in Reluctant Professional Sectors

Despite the acceptance of the profession by the Department of Labor, many sectors still find it difficult to include an editor when writing large documents. Government industry is often one of these sectors. Filled with highly educated individuals, authors tend to find themselves pulled in multiple directions, and they struggle to devote the necessary time to documentation. When time is limited, the first person to feel it tends to be the editor. Even as an editor embedded within a specific programmatic department, I find my authors often do not respect the amount of effort it takes to review their work. However, it is because I am embedded that I can help guide them from the document's inception. The most effective editors today are working with authors and subject matter experts from a document's inception in order to create the most effective document possible. Moreover, creating a mutually beneficial relationship where the editor and the author collaborate well and understand each other's responsibility to the document will help to further relieve the reluctant author. Yet, even still, there are other things that can help when working in the government sector.

Creating Leverage with the Proper Tools—Using Templates and Style

When working in a field where documentation is something derived from requirements, rules, and upper management, editors can find themselves viewed as part of the problem. Busy professionals may not see how their rush to complete a document causes it to have flaws in content and form. Therefore, I find it best to stay present in projects. I rely on the professionals, as my subject matter experts, to write the technical content, but I provide them with tools to do so more easily. Creating templates and style guides can grease the wheels of an otherwise reluctant system. In the past ten years, I have created templates for numerous document types including procedures, plans, manuals, letters, and reports. I have created simple templates for trip reports and complex templates for lengthy manuals. These templates have helped me to guide the writing process and provide direction on what the authors need to discuss in the different document types. Authors who rush through their day running from meeting to meeting tend to find that the templates and early guidance can alleviate much of the complication in writing their documents. After working in a field long enough, you can learn to anticipate the sections needed in a document type. For example, a plan would require an introduction, a section on roles and responsibilities, and the description of the plan itself. Having a template with these sections preformatted will allow the author to quickly understand exactly what they need to effectively complete the document. I have found that these simple templates can be used for a multitude of similar documents. A program may require a systems engineering plan, an issues management plan, a baseline review plan, and other plans similar in nature but vastly different in purpose. Using the templates can help to ensure all necessary sections are filled out efficiently.

Furthermore, style guides can help to create consistency both within a document as well as within a department, division, or company. It may be necessary to have numerous levels of style guides to create the overarching consistency that a larger company may be looking for. These style guides should not be so prescriptive that they constrain the author uncomfortably, but they instead should be quick access guides to consistency. I work with three levels of style guides: the Executive Secretariat published by the executive office; *The Chicago Manual of Style,* 16th Edition, as prescribed by the executive office; and the department's style guide that we have assembled to fill in the gaps of the two previous guides. It is this departmental-level guide that allows me the leverage needed when authors struggle to adhere to the chosen guidelines. The department style guide delineates heading styles for numerous levels, bullet styles, numbering styles, captions guidelines, and paragraph spacing. It also goes into the use of acronyms and initialisms, describing how and when to spell them out and the need to avoid dual meanings for specific acronyms. Most of these guidelines do not bother the authors; however, how we list names in a concurrence sheet and the number of spaces between sentences can become hot topics. Having a published and approved style guide along with approved templates quickly nullifies many issues stemming from personal style.

Being Firm but Respectful—Using the Proper Tone with Scientific Authors

In my experience, scientific sectors are often filled with individuals who require a firm voice when being given direction. This includes editorial direction. Highly educated and intelligent individuals may not see the need for an editor, and may be reluctant to allow the editor sufficient time to properly review a document. It has been said that, in general, authors respond better to downgraded, indirect comments (Mackiewicz & Riley, 2003); however, I find the exact opposite true when working with engineers. Subjunctive tones tend to be dismissed by these authors and may even cause a distrust of the editor. Engineers and scientists work in facts and respect individuals who can be direct and courteous. If you present yourself, and your edits, with the same level of regard as they believe they should receive, they will deem your inputs to have greater value. Yet, when doing this, you must also show them the utmost respect. I work diligently to present my authors with suggested edits followed by payoff statements. For example, "Adding a graph here would further illustrate and strengthen your argument." A strong guiding hand will have much better response than that of someone who downgrades their edits to avoid any possibility of offense. I believe that, in highly technical

fields, using too many downgrades when commenting about edits will downplay your authority and diminish the level of respect you have in the office. As an editor, you can be both polite and firm without downplaying the importance and relevance of the modifications that you recommend. Using this type of voice will help you create a stronger rapport with the authors in this type of field.

Yet you may come across authors where this technique does not work in your favor. As editors, we often find that we become counselors. You must get to know your authors: their personalities and quirks, their voice and preferences. Knowing whose work you are editing, while still keeping the audience in mind, will help you tailor your edits to reap the greatest rewards.

Time Constraints and Editing—Explaining the Editing Process

Often I have heard "just do a quick spell check" or "can you just fix the acronym list?" I make note of who has said this so that I can further explain what my job entails. Engineers and the like often do not innately understand the effort that goes into a full edit. One benefit of being an embedded editor is that I can make sure to take the time to explain what I do and how long it takes. I take the time to explain how audience affects tone, how having multiple authors will result in multiple voices, and how certain document types require different sections. However, explaining how long a specific edit may take is best received when discussed in concrete terms. I have found that giving the author the three standard choices (proofreading, copyediting, and substantive editing) along with associated time guidelines helps them comprehend the time necessary for a proper edit. Proofreading tends to move quickly at 6-8 pages per hour. Copyediting (my most commonly requested type of edit) will move at about 3-5 pages per hour. However, when substantive editing is required, I quote at most 1-2 pages per hour. These estimates allow me to juggle multiple interruptions as well as delays due to difficulty reaching the author during the editing process. Working with your author to determine the level of edit required can help you to provide the most appropriate level of work while still satisfying the needs of the intended audience. Of course, once you are working on a document, you may find that it needs much more work than you originally accounted for. Having good rapport with the authors will help you to overcome these obstacles without frustrating them or causing undue stress on yourself.

Becoming an Indispensable Asset—Diversifying Your Role in the Office

Becoming a successfully embedded editor will come with great returns on your investment; however, you must learn how to prove your worth if faced with budget shortfalls. Editors are often seen as superfluous when budgets are tight. Finding ways to diversify your job duties is advantageous and can help protect you from pink slips when the going gets tough. I have found that there are often repetitive reports that need to be written and projects that need to be coordinated. After creating style guides and templates, you must find other ways to continually show your worth if the editing tasks ebb and flow. If you can work as an intermediary for repetitive reports—gathering information, putting it into the necessary forms, and learning the preferred terminology for certain projects—you can relieve burdens from others. These tasks may seem mundane, but they are necessary and will garner appreciation. Furthermore, be proactive. If you see where a document may be helpful, write it. I often write documents that, though lengthy and useful, may not seem impressive to a fellow technical editor. Yet these often catch the eye of other departments that have struggled with the same issue. For example, when new requirements are enforced upon the workforce, confusion and frustration may be apparent. It would behoove you to research and write a document clarifying the new requirements with steps that can be easily applied to the already busy day of your coworkers. Creating these multiple layers of protection against layoffs is always beneficial.

Pulling It All Together

Being a technical editor embedded in a technical, scientific, or government sector can be truly rewarding. If you are looking for a career where you are constantly challenged, always learning, and forever expanding your horizon, this may be the field for you. Yet you must be prepared to stand your ground, guide the authors with an authoritative but respectful tone, and find multiple ways to become indispensable if you are going to be successful in trying to change the rules in this old, established game. My career path was never supposed to be that of an engineer, but I truly enjoy learning from them each day.

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BIBLIOGRAPHY

Mackiewicz, J., & K. Riley. "The Technical Editor as Diplomat: Linguistic Strategies for Balancing Clarity and Politeness." *Technical Communication* 50.1 (2003): 83–94.

Malone, E. A. "Learned Correctors as Technical Editors: Specialization and Collaboration in Early Modern European Printing Houses." *Journal of Business and Technical Communication* 20.4: (2006): 389–424.

Pringle, K., & S. Williams. "The Future Is the Past: Has Technical Communication Arrived as a Profession?" *Technical Communication* 52.3 (2005): 361–370.

Staples, K. "Technical Communication from 1950–1998: Where Are We Now?" *Technical Communication Quarterly* 8.2 (1998): 153–164.

The Subject Line: Are You Doing It Wrong?

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By DANIELLE L. KARR

IF YOU'RE A PROFESSIONAL writer in any kind of marketing or communications position, odds are you use mass emails to reach your current or potential audience. And if you've ever had a low open rate for an email, you know that it can hurt both your heart as well as your goals. You've worked hard on your content and curating a robust email list, and you want positive results! But here's good news—you *can* get more people to open and read the emails you send out, and part of the answer is in your subject line. Writers often overlook the art of the subject line, thinking that a simple description of the content will satisfy. But when you are looking to put your best foot forward in a reader's inbox, turning to solid subject line strategies can help you create effective messaging that will boost your email open rate and get people reading what you have to say.

What Is a Subject Line?

A subject line is the first thing a reader sees when they get an email in their inbox; it's the line of text that entices them to want to open the email and read more. Unfortunately, a mistake writers sometimes make is to think of subject lines in the same way they think of headlines. A traditional headline is usually written to prepare the readers for what lies ahead in the rest of the text. It cues context and ties in to the body text. Subject lines, on the other hand, are all those things and more: they are meant to persuade readers to take action. They need to be enticing enough for readers to want to click, rather than simply setting up information. If your subject line tells your reader what's in the email but doesn't persuade them to open it, then your email is off to the trash bin without ever having a chance.

I work in marketing in the security and smart home automation industry, writing emails for both potential customers and our over one million current customer base, so this is a topic I deal with on a weekly basis. In our office, one of the best-performing subject lines we've sent out has been, "Don't open if you hate good news!" When you click the email, it opens to the headline of "Renew today and lock in your low rate." Notice how the headline is much more straightforward than the subject line? This type of subject line leaves readers curious to open it and read on.

Remember the Basics

When it comes to subject lines, there are some basic tricks that will serve you well every time. These tricks include keeping your subject line to a maximum of 50 characters and following grammar rules. Also, you can write your subject line in title or sentence case, but try not to overuse capitalization or punctuation when writing or you may decrease your open rate because it comes across as spam.

"Spam" is any mass email your audiences deems irrelevant, dishonest, or inappropriate to them, so make sure to style your subject line in a way that conveys you have pertinent information that is meant for them specifically. Proper grammar and punctuation—along with a good subject line—can demonstrate that your email isn't generic or a blanket sale; rather it is tailored to their interests by a professional and is worth the click.

Play to Your Audience

One of the most important things to keep in mind when writing your subject line is your audience. Whose curiosity are you trying to spark, and how can you best achieve that? While your audience will vary depending on your topic, there will always be some fundamental traits you should keep in mind. In her book, *Decoding the New Consumer Mind*, Kit Yarrow explains how brands (that's you!) used to be king, with consumers flocking to be a part of the brand. But there has been a shift over the last couple of decades, and now more and more consumers are less interested in aspirational brands and more interested in brands that admire them, know them, and serve them. She explains that the consumer wants to be the star, and brands should shift their approach to be more personal in nature, more human, so to speak. So, when consumers want to have relationships with their brands, how does that translate into subject lines?

Your subject line needs to be about your audience. It needs to be relevant to them. For example, "Write THIS to double your followers on Facebook" focuses on the reader and tells them that there is one trick in this email to help with social media marketing. On the other hand, something like "THE BIGGEST SALE!" doesn't focus on the reader and just seems to be yelling about your brand.

Make It Personal

Personalized emails have proven to frequently have a higher open rate than nonspecific emails. Personalizing your subject line with some information about your reader, such as their name or location, is a great way to put them in the spotlight. If you choose to use this strategy, you need to be very careful when personalizing things like names so that you don't get the information wrong. The name entered in the data system must match the name you want in the subject line because if you have a dynamic data field, it will simply pull the information on file into the text. One time, our company had a close call with an employee error where they had written a customer's name down in the system with the identifier "poor health" next to it. Had we not taken the time to look over the name list in detail before sending it out, it would have read something like, "Jason Dawn (poor health), you have two days to watch this!" Imagine what that would have done to our reputation, as well as the negative reaction our customer would have had!

The idea of keeping it personal isn't new to the marketing scene. Hoover Adams, a very successful newspaper publisher starting in the 1950s, had the mantra "Names, names, names!" when it came to picking content for his paper. He once said that if he could, he'd publish just the pages from the phone book to get names in his paper, and he knew that everyone in town would still read the issue to make sure *their* name was in it. That strategy is what kept people reading his paper; they were looking for the spotlight on themselves and the people they knew. His successful marketing strategy can be implemented in in today's subject lines. Putting information like a reader's name first draws their attention and makes them want to keep reading.

Clever Gets the Open

If for some reason your subject line cannot be personal, your email can still be successful if it's clever. Subject lines with musical connections, "The Final Countdown" for a holiday email, or a well-known poem, "Oh the places you'll go!" for a Summer graduation newsletter or travel ad, will still spike readers' curiosity through connotation and invite them to open and read your message. Make sure, though, not to fall into the trap of thinking generic is clever.

The bottom line when it comes to email communications: it doesn't matter how big your email list is if no one opens what you send!

"They're here!" can be easily overlooked, while "What the font?! Free fonts inside for you!" is clever yet still gives the reader enough information to let them know they're going to be interested in what you have to share. Note that questions are also a clever way to get the recipient's attention. "Are you making these teaching mistakes?" engages with readers by having them ask themselves a question—one that they hopefully want the answer to!

Worried about being clever? Just remember that an easy way to be clever is to make your emails timely. Subject lines like "Is your breath ready for that midnight kiss?" on New Years Eve helps your audience know that this email is just what they need *now*.

Time and Clicks Are Money

Another important thing to remember about the modern reader is that they are busy. Your audience will only give you half a second to convince them to read what you have sent, and they will always remember if you waste their time. Be sure to craft your emails with that in mind, and then tip them off to that fact in your subject line. Subject lines like, "3 reasons your prospects aren't buying" and "The main reason this necklace gets my vote" indicate to readers that your email is focused and likely written in an easily digestible format. Examples of poor subject lines include "The CranCheese Quarterly Newsletter" and "Our product forecast" because they do not give any length or focus indicators—in other words, they sound lengthy to read. Your audience may worry that opening the email will send them down a scrolling rabbit hole—something they definitely don't have time for. Make this benefit clear to entice readers to open. If you are sending your readers seven tips on how to improve their blog post, then let them know! Subject lines like, "7 ways to make your blog posts not suck!" help your readers quickly understand just how helpful and easy to read your email will be for them. Using lists, bullet points, and keeping paragraphs short are great ways to format content for emails, and having subject lines that let readers know what the format is inside will help increase open rates.

Only Say It's Urgent If It's Truly Urgent

Urgent subject lines walk a fine line between being effective and being seen as possible spam. When you say there are time-sensitive materials in the email, mean it. Subject lines like "You only have 48 hours to watch this!" and "Free shipping ends at midnight" tip off recipients that they should open your email before other, more generic ones. Your urgent subject line will encourage your reader to act now, instead of putting it off until later when there's a very good chance they'll forget about it.

When it comes to this trick, just remember honesty is the best policy. So unless you're sending an April Fool's Day email, make sure every email subject line you send out can stand the truth test. Your readers will know fast if you're making false claims of urgency, and likely send you to the spam folder—which, in the end, will decrease your ability to reach them with future emails!

Always Test Your Subject Lines

Thorough A/B testing can be paramount to your email success. A/B testing is done when you take your email list and divide it into sections, testing a different subject line with each group. Email writing is a world of trial and error, and this new Wild West is best conquered through testing. See what works for your readers, and what doesn't. Then build off that knowledge. There are several programs available to help you track your email open rates with A/B testing like Google Analytics, Optimizely, Visual Website Optimizer, Unbounce, and more. Do some research to see which program out there would be best for your specific email needs.

Even before you send out an email though, a good, quick way to do an initial test on your subject line is by putting yourself in the place of your recipients. Does it sound enticing? Spammy? Boring? Try to avoid sending out subject lines you don't think even YOU would open. You can also use coworkers or friends to test your subject lines and give you honest feedback as to how it makes them feel. Does it persuade them to want to open it? Get honest feedback, and then pair your organic testing with A/B testing for well-rounded results.

Send to Be Read

The bottom line when it comes to email communications: it doesn't matter how big your email list is if no one opens what you send! The subject line is your first—and possibly last—chance to impress your reader. Make sure you're getting the highest open rate possible by using strategic messages that entice your readers to give you some of their very valuable time. You have great content to share with your readers, so write to ensure they understand that the information they've been looking for is just a click away!

DANIELLE KARR *was born in California, grew up in Oregon, and put down roots in Utah. She graduated with a Bachelor's in communications and a minor in English, interned at one of the most prestigious ad agencies in New York, and is currently earning a Master's in technical communication from Utah State University while working full time as a senior copywriter at an international smart home company. She has worked as a copywriter, advertising consultant, and editor for the past several years, and has written for a wide variety of clients. When she's not writing, she enjoys spending time with family, gardening, and adventuring with her husband and two dogs.*

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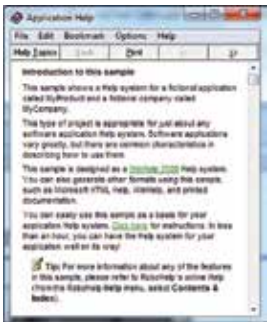
How Mobile Will Change Technical Communication

By NEIL PERLIN | *STC Fellow*

IF YOU'RE FAIRLY new to technical communication, the images below may look unfamiliar, but both were turning points in the evolution of the field. Word processors came on the scene in the early 1980s and put an end to typewriters, galleys, and other paraphernalia of a lost age, replacing them with tools like Word and Framemaker. Windows Help was Microsoft's online help standard from 1989 to 1997, starting the shift from print to today's browser-based outputs.



Figures 1-2. Turning points in the evolution of technical communication: a Wang word processor and the Microsoft Windows Help circa 1989-1997.

We're now looking at the next turning point, mobile. Consider the chart in Figure 3 from Gartner IDC.

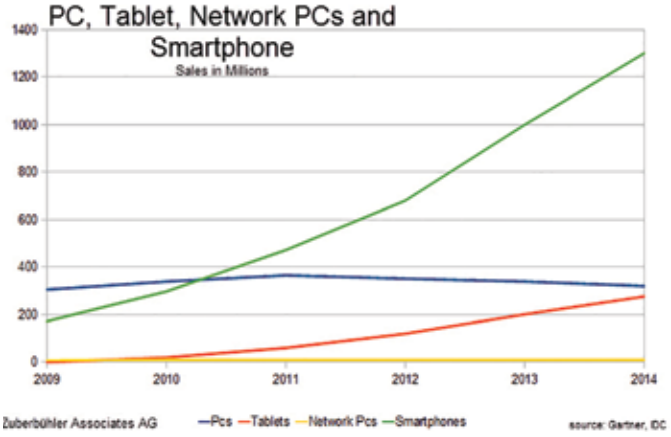


Figure 3. Device sales per Garnter IDC

And "mobile" goes beyond phones, even beyond devices. As Kevin Benedict from Cognizant's Center for the Future of Work put it, "The age of the mobile app is dead … it's now the 'mobile me' experience."

As mobile spreads, our readers will expect to get documentation the way they get news or social media. How will those expectations affect technical communication? That's the subject of this article.

I'll first briefly discuss the impact of mobile and what we need to do now to fit it into our worldview. I'll then discuss some technologies that are on the horizon.

The article is based on a presentation that I've given at several conferences. The presentation is based on my Flare and RoboHelp consulting, app development consulting, and a think tank hosted by Huawei in Plano, Texas, in the Fall of 2015 in which I participated. I acknowledge all parties at the end of this article.

As mobile spreads, our readers will expect to get documentation the way they get news or social media. How will those expectations affect technical communication?

What We Need to Do in the Short Term

This section addresses things we should be doing, mobile or not. The advent of mobile just increases their importance.

Define the benefits we offer

We need to show that technical communication goes beyond writing manuals. It supports the company's business strategy and might even act as a revenue generator (discussed in the next section).

Goal—Make sure the documentation groups are active players in the company's technical and business strategy and thus have the credibility to participate in any mobile effort.

Look at new business models for technical communication

As long as I've been in the field, there's been debate about how to turn technical communication from a cost center into a profit center, or at least a revenue generator. How might we do this?

Interesting examples include Dozuki (*www.dozuki.com*) and iFixit (*www.ifixit.com*) which offer post-sale service manuals online and sells tools and parts along with the manuals. Whether or not something like this might work for you, it's a clever alternative to traditional technical communication.

Goal—Look outside the traditional technical communication business box.

Define what "mobile" means for your situation

When online help shifted to HTML in the late 1990s, there was a lot of confusion over terminology. Was "HTML Help" the same as "HTML help"? Was "WebHelp" the same as "Web Help"? Did we have to use WebHelp for material on the Web and HTML Help for material that was to be stored on users' local PCs? This confusion led to companies buying the wrong authoring tools, hiring the wrong developer, creating the wrong outputs, or all three.

Today we face the same definition issue with "mobile." Is it a mobile-optimized Web page? Responsive design? An

app? Something else? Until you define what "mobile" means in your circumstances, you run the same risk of buying the wrong tools, hiring the wrong person, or developing the wrong output. Defining "mobile" isn't difficult; it simply has to be done.

Goal—Set a clear direction for moving into mobile to avoid repeating the mistakes of the past.

Code correctly

Every language and tool has hacks and workarounds that are fun to find and interesting to try, but they can be trouble. The latest version of your browser may not recognize a hack that worked three versions ago. Conversion tools may not recognize your hack that worked in an older version of the tool or that was meant to be run by hand. As someone once said, "A hack is a one-off; good coding is forever."

Goal—Future-proof your material to be able to take advantage of new mobile outputs and tools without first having to clean up those hacks that originally seemed so clever.

Become more technical

Technologies like CSS have great capabilities, such as the ability to create adaptive content, but if you're not at least conceptually familiar with the technology, you're limited to the features that your GUI tool supports. Becoming more technically adept now opens up those capabilities. Learn about how to place images using the IMG tag's float property rather than tables in order to let them automatically adapt to the size of the display screen, for example.

Goal—Be able to use mobile and related technologies to their fullest extent now rather than having to wait for your GUI authoring tool to catch up.

Refocus our writing by looking at "mobile first"

Luke Wroblewski, a product director at Google, wrote an article in 2009 called "Mobile First" in which he argues that Web applications should be designed with mobile as the first priority (*www.lukew.com/ff/entry.asp?933*). The article makes three points, all of which apply to technical communication:

1. Mobile is exploding.
2. Mobile forces you to focus.
3. Mobile extends your capabilities.

Goal—Write to the extreme standard of mobile to improve and extend all our writing.

Rethink our writing style and cut excess content

Write shorter, simpler, more focused material. Cut out a lot of conceptual material on the grounds that "if users don't know the concepts that underlie our software, should they even be using it?" Consider moving away from full sentences to sentence fragments.

This can be hard. Sometimes you have to change your entire mindset to make major cuts while keeping the meaning. For example, I can cut this sentence from *The Highwayman* by Alfred Noyes, "The wind was a torrent of darkness among the gusty trees" to, with apologies to Alfred, "It was windy."

Goal—Make content shorter, optimized, and effective for the smallest screen we may encounter.

Consider changing navigation models

My experience with Flare and RoboHelp classes is that fewer and fewer technical communicators create indexes for their projects, preferring instead to use search. This change is even manifesting itself in new interface models like MadCap's top navigation interface released with Flare 11 in 2015, shown in Figure 4.

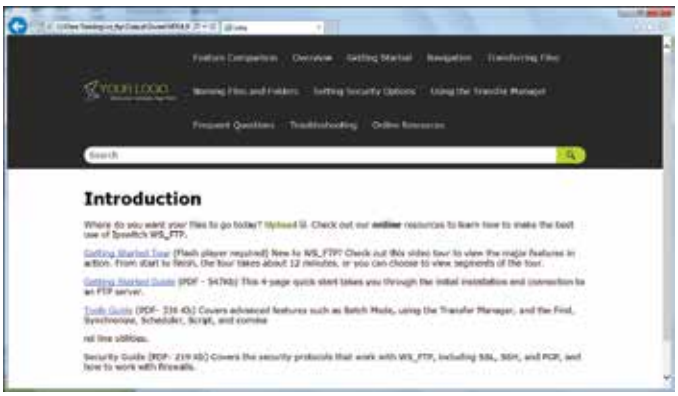


Figure 4. MadCap Flare in 2015.

Unlike the traditional tri-pane, the topnav model makes no provision for an index. This puts increased emphasis on SEO (search engine optimization) and a growing need to store and analyze user search data for use in improving the output now and customizing its delivery in the future.

Goal—Change your projects' findability to actively embrace search.

Keep tools up-to-date

Try to avoid using old versions of authoring tools and then leap-frogging intermediate releases to adopt the latest version. The old version may offer proprietary features that were deprecated in later versions and are no longer supported in the latest version. Or offer a feature that's not supported in a competing tool to which you want to switch. For example, Adobe RoboHelp offers a slick multilevel list feature that lets authors predefine nested list formatting. Unfortunately, this feature is proprietary; text that uses it in RoboHelp projects doesn't import into Flare. Fixing such problems may require working in the code, which can be more time-consuming and expensive.

Goal—Take advantage of new features and avoid painting yourself into a technical corner.

Don't get blinded by the "next big thing"

There's always something new and cool coming along. It's important to look behind the hype to see if it make sense

technically *and culturally*. DITA, for example, offers some significant benefits but can be demanding to use and hard to fit into existing documentation group cultures. Another potential cultural misfit is augmented reality (AR). AR can create enhanced service manuals but can suffer from the "Lefty Lucy, Righty Tighty" problem, material so basic that the target audience may be insulted and refuse to use it, or material distracting enough to cause safety problems (see *http://joebarkai.com/augmented-reality-righty-tighty-lefty-loosey/* by Product and Market Strategist and Catalyst Joe Barkai).

Goal—View new technologies *culturally* as well as from the business and technical perspective.

Consider the politics of change

Anticipate staff turnover because of change. New hires' willingness to try new technologies will be offset by the loss of institutional knowledge as old hands leave. Moving into mobile may also encroach on the turf of other groups that are more traditionally viewed as the creators of mobile, such as IT.

Goal—Consider culture problems that may arise as you move toward mobile.

We're going to have to think differently about our content in order to make it work with apps and take advantage of the capabilities they offer.

What to Start Thinking About

This sections addresses technologies that exist but have little presence in technical communication to date, maybe because there's just no fit yet, or because the fit hasn't happened yet. For example, HTML and technical communication were in completely separate silos until Microsoft unexpectedly merged them in 1997 with its release of HTML Help. So keep an eye on the technologies discussed here.

"True" apps for technical communication

Responsive design lets us create material that can be read on mobile devices but that doesn't look like typical apps. Figures 5-7 show examples of responsive design output versus "true" apps. The example in Figure 5 is from a responsive output that I created using Flare 11. It looks rough because I simply output an existing project without optimizing it for responsive output, but it *is* running on a mobile device. Figure 6 shows a preliminary app for the STC New England's 2015 Interchange conference. It looks rough because it was a functional prototype, but it illustrates visual capabilities that responsive output won't have without additional work. And Figure 7 is a completed diabetes-monitoring app.

Figure 5. Responsive design created using Flare 11

Figure 6. Preliminary app for STC New England's 2015 Interchange conference

Figure 7. Diabetes-monitoring app

Technical communication and apps aren't the same thing, you say? Perhaps, but there's no reason why our content can't be as visual and word-light as an app while adding an app's responsiveness, location-awareness, and other features.

Technical communicators with whom I discuss apps rarely think of themselves as app developers because of differences in the technologies and the tools. But here's the main interface for ViziApps, the tool used to create the two apps in Figures 5 and 6 (and, in the interest of disclosure, a tool in which I'm a certified consultant and trainer). The functionality differs from what we're used to in tools like Flare but the interface will quickly become familiar.

If traditional documentation isn't enough and you need interactivity, more of a visual element, location-sensitivity, and similar features, you may find yourself creating apps in the near future. You'll be buying and learning new tools and concepts. You'll also be revisiting issues like what email client users have on their phones (which sounds new but is actually similar to the old issue of what browser users had, if any, on their PCs in the mid-1990s). And you'll be facing truly new issues like putting help content (data) into a database in order to pass it to or share it with an app.

We're going to have to think differently about our content in order to make it work with apps and take advantage of the capabilities they offer.

New interfaces

Keyboards and screens have been the main interface for years and work fine, but not for mobile where users may not have the space for them. (Although technology may be changing the screen issue, watch this video from *MIT Technology Review, https://www.facebook.com/technologyreview/videos/10153952349744798/?fref=nf*, to see what new glass technology may do to displays in the years ahead.)

The likely replacement seems to be voice interfaces like Apple's Siri and the Amazon Echo's Alexa. Another interesting idea is Google's Now On Tap intelligent assistant

Figure 8. ViziApps interface

and the ability to get help about what's on an app screen without leaving the app.

Working in this environment means writing content to be spoken instead of read, or both. We may also have to get involved in the technical side of audio, such as the CSS standard's audio properties like pitch and pause-before. I haven't heard of any technical communication projects using voice as an interface yet, but the technology is out there waiting. (If you *are* using voice for the interface on an online help project, please contact me.)

Adaptive content

One looming problem with creating content to be used on multiple platforms or in multiple scenarios is content adaptation. Consider the "click" vs. "tap" issue when content may be used on both desktops and mobile devices, such as for responsive design. How do we deal with this? (You'll find a discussion of this issue on LinkedIn at *https://www.linkedin.com/groups/1276817/1276817-6108413553465708544*.)

One answer is to use intermediate words like "select," but this can be ambiguous or just sound clunky if users have to select an item from a list and then "select OK." An alternative is to create computer-driven adaptive content that uses CSS and media queries to test for the device display size and change the text accordingly. Mike Hamilton from MadCap Software and I created a prototype of this for Flare in 2014. The code isn't pretty, but it's worked nicely in every test I've run. (Email me if you'd like to see the code.) Note that this use of CSS also ties back to my earlier point about becoming more technical.

Content customization

Content customization has been with us for years on the Web as user preferences are tracked by various types of analytics software. You see it every time Amazon presents you with a list of options based on your previous purchase decisions. That tracked information can be thought of as a "data halo" (a cognizant term) around users. Most of it today applies to ecommerce, but it may apply to technical communication as well.

For example, if certain users access the same help page or search on the same subject daily, analytics can keep track of that and let you offer that page or search result automatically when conditions are the same as on previous occasions.

You can collect the analytic data to do this using a general technology like Google Analytics or, more specifically if you're a Flare shop, MadCap's Pulse add-on.

However you do it, it's a good idea to start collecting analytic data now. If you want to start creating customized content in the future, you'll be building the data foundation now. And even if you don't think customization is in your future, the collected search data will still give you

information about what users are looking for and what they can and cannot find, which is information that will help you improve the product and the online help.

Cross-device state preservation

Finally, consider that "mobile experience" users may find themselves starting to read your material on a PC in the office, then go out on the road and want to keep reading the material on a tablet or phone or have it read to them while driving their car. Easy. Just re-open the material and read it again. But what if users want to continue where they left off on the desktop but on a completely different device *without having to restart from the top?*

I saw the idea mentioned once in 2015 and most recently in a Bright Ideas for 2016 article in the January 2016 issue of Wired (see *https://webshelf2.files.wordpress.com/2016/01/wired-january-2016.pdf*). The idea is so new that it doesn't even seem to have a name. I just made up the term "cross-device state preservation" in order to have a reference in conversations. No documentation group that I've spoken with has gone far enough down the mobile path for this to be an issue, but one lesson from the rise of online help is that things change and that it's better to do things correctly from the beginning than to have to go back and fix them afterward.

I've spoken with several engineering managers about how cross-device state preservation might work. It will require that the material be stored on a server and dynamically reformatted for whatever device is being used to read it, plus Internet access (obviously), plus a login to let the server and format software know what material to format for which user, plus syntactically correct code, plus extensive use of metadata. All these requirements make cross-device state preservation the most esoteric of all the new mobile experience technologies.

Summary

Some of the effects of mobile on technical communication are obvious: new tool and technology skills, huge changes in how we create content, new problems (and new forms of old problems), plus changing business models and intra-company relationships. But the biggest effect will be the emergence of new and challenging lines of work that I expect can take our field in unexpected directions and bring younger generations into the field.

Thanks

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Michael Kuperstein, CTO of ViziApps

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Where Practice Meets Theory:

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Adjusting Classroom Pedagogies for a Globalizing Technical Communication Field

By TIFFANY PRICE

THE FUTURE OF TECHNICAL COMMUNICATION is expanding to include elements necessary for the globalization of the field. Technical communication can be used as a means of communicating across cultural boundaries in order to accomplish the rhetorical goals of particular documents (Campbell, 1998). Professors of professional and technical communication are called upon to teach tech comm students the elements of appropriate communication in the global world.

As the globalization of technical communication evolves, pedagogical adjustments should be made to ensure that all students are prepared to adequately communicate across cultural boundaries. Accomplishing this task is best advocated when exploring the balance between theory and practice in a classroom.

Instructors in the 21st-century technical communication classroom need to evaluate their pedagogical approach to teaching communication that includes cross-cultural paradigms. This change can be done by balancing theory and practice in order for technical communicators to be prepared for globalization.

Importance of Theory

As the technical communication classroom develops, instructors are called upon to incorporate lessons on theory. The theory of the profession can often be exemplified while focusing on the research of the field. To balance theory and practice in a technical communication classroom, Graham Nuthall (2004) examines the importance of research and how research can relationally bind with practical experience in order to enhance teaching. Nuthall is referring not only to the research that applies directly to the subject the instructor is teaching, but also to the ways in which theory can be emphasized in the classroom.

One end of the educational spectrum encourages the importance of theory, which attests not only to the crucial push to incorporate topical research in the classroom, but also to the use of appropriate textbooks that will adequately permit the development of theory. Thomas Barker and Natalia Matveeva (2006) suggest that instructors choose appropriate textbooks as a way to teach theory, which can prepare the 21st-century student for globalization and their professional position in the field.

Barker and Matveeva also explore the awareness, information, and practice of textbooks as a guide for analyzing whether or not the material is appropriate for the classroom. The critical elements to consider, which may call for a pedagogical adjustment on the instructors' behalf, are to include adequate research on the topic and to choose textbooks that enhance theoretical aspects of learning within the technical communication classroom. By utilizing both research and appropriate textbooks, theory can help prepare technical communication students for globalization.

Importance of Practice

Although theory is essential, it is only one half of the equation. Putting theory into practice is the other critical half that allows tech comm students to understand the field's globalized position in the 21st century. Practice can be categorized under many different educational approaches, but it is a way in which students are able to implement theory in a probable manner.

Activities for Practice

Barker and Matveeva encourage instructors to adjust their pedagogies to include practice through methods of assigned projects, games, or activities that help break the bias students' cultural experience or background naturally creates. The call for such activities allows students to break free from the binding of their cultural mold, and in turn learn that certain cultural standards are often what drive intercultural communication. Furthermore, these activities allow other students in the classroom to better understand mannerisms of unfamiliar cultures, which in turn helps them in the global technical communication profession.

Writing for Practice

Writing assignments, as a way of combining theory with practice, can be used as a means of exploring the cultural differences of those in the classroom. Writing assignments

highlight the differences of diverse writing styles to the way technical communication is growing around the globe. Students of an intercultural classroom who are assigned to put theory into practice through instructor-requested writing opportunities will surely learn how to incorporate theory into practice. Also, the instructor can use the writing assignments as a way to introduce the class to the potential cultural differences of composing technical documents.

Marie Paretti writes, "Cooper and Holzman, in *Writing As Social Action* (1989), elaborate on the complexity of this situation by exploring the ways in which 'writing is located in the social world, and, thus, is fundamentally structured by the shape of that environment' and delineate the ways in which the act of writing is always situated in a complex set of interlocking systems of ideas, purposes, interpersonal interactions, cultural norms, and textual forms" (2008, p. 492).

Applying theory and practice through instructor-assigned writing assignments may ultimately allow students to grasp the understanding of intercultural communication, especially as it applies to the globalized movement of technical communication in the 21st century. This incorporation in the classroom will prepare students for the development of technical documents that meet the rhetorical purpose necessary for reaching across cultural boundaries.

Balancing Theory and Practice

Instructors will need to adjust their pedagogies when approaching a technical communication classroom that balances theory and practice in order to prepare the 21st-century student for the profession in a globalized workplace. Theory is essential, and choosing the correct textbooks and exploring the appropriate research venues will help emphasize the importance of theory in the classroom. However, practice is just as important, and applying theories to assignments that allow students to explore intercultural relationships and techniques used to accomplish rhetoric is crucial in the learning process.

Graham Nuthall claims that activities implemented in the classroom are best interpreted by students when there is a direct relation to their goals, interests, and background knowledge, allowing the activities to become relevant for them (2004). It is the instructors' responsibility to find material that will explore theory that is relevant to the students so they can then apply that theory in practice and use those experiences as a means toward learning

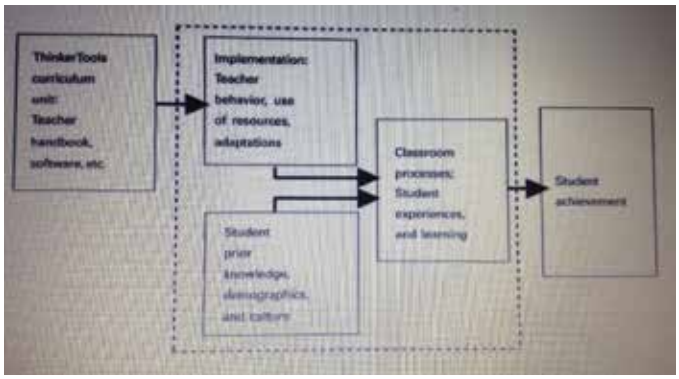

Figure 1. Relating Classroom Teaching to Student Learning (Nuthall, 2004, p. 290).

technical communication. Nuthall created a chart, seen in Figure 1, that shows what methods permit student accomplishment when considering the instructors/teachers' roles in the classroom.

Instructors are called on to adjust pedagogies to ensure student achievement, and the flow of learning from Figure 1 reveals the importance of balancing theory and practice in order to adequately prepare the technical communication student for the work field.

Conclusion

Much change in the field of technical communication is directly related to globalization. Instructors should be required to prepare technical communication students by adjusting their pedagogies to incorporate a balance of theory and practice, and to ensure that students are adequately using theory while practicing the art of rhetoric, the communication standards for a cross-cultural technical document, and the elements of communicating adequately in a global workplace. As the technical communication field expands, a tech comm student should be prepared to work in global technical communication through balancing theory and practice.

TIFFANY PRICE *is currently pursuing a Masters in technical and professional communication with a certificate in multicultural and transnational literature through East Carolina University's distance education program. Tiffany has taught at the high-school level, but is currently in a transitional phase as she has recently accepted an online teaching role at the University of the People. Tiffany intends to use her graduate degree to teach English at a higher-education level.*

REFERENCES

Barker, Thomas, and Natalia Matveeva. "Teaching Intercultural Communication in a Technical Writing Service Course: Real Instructors' Practices and Suggestions for Textbook Selection." *Technical Communication Quarterly* 15.2 (2006): 191–214.

Cambell, Charles P. "Beyond Language: Cultural Predispositions in Business Correspondence." *New Mexico Institute of Mining & Technology* (1998). Accessed 2 March 2016 from *http://infohost.nmt.edu/~cpc/internationalethos.html.*

Cooper, Marilyn, and Michael Holzman. *Writing as Social Action.* Heinemann, 1989.

Nuthall, Graham. "Relating Classroom Teaching to Student Learning: A Critical Analysis of Why Research Has Failed to Bridge the Theory-Practice Gap." *Harvard Educational Review* 74.3 (2004): 273–306.

Paretti, Marie C. "Teaching Communication in Capstone Design: The Role of the Instructor in Situated Learning." *Journal of Engineering Education* 97.4 (2008): 491–503.

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Student Infographic Competition Awards

THE FOLLOWING ARTICLES were written by the students who won the Academic SIG's Student Infographic Award at the STC Summit in Anaheim, California. The competition challenged STC student members to demonstrate their ability to clarify complex data sets and to exercise their creative talents by presenting important aspects of the STC Salary Database as an infographic.

The first article below is by Tina Kister, a graduate student at the University of Florida, and the second article is by Jonah Schwartz, a graduate student at East Carolina University. Both entries are displayed on the STC website.

Their award citations read:

Tina Kister
For the creative and interactive interpretation of the salary data that illustrates an excellent example of using technology to enhance the user experience.

Jonah Schwartz
For an excellent interpretation of the contest prompts and analysis of the salary data and for displaying the data in a creative and user-friendly way.

Designing a Technical Writer Employment Statistics Infographic

BY TINA KISTER | *STC Student Member*

As an information developer, my goal is to take complex information and make it understandable, usable, searchable, accurate, relevant, and delightful. I'm passionate about combining best practices from a variety of communication-related fields, such as presentation design, technical writing, data visualization, user-interface design, instructional design, and more. People working in related fields (like Nancy Duarte in presentation design, Nathan Yau in data visualization, and Hans Rosling in statistics) often apply the same fundamental principles that guide quality technical communication. They also apply new principles that can improve both technical communication products and the way that technical communication is perceived.

While I've been a technical writer and print designer for several years, in the spirit of taking a multidisciplinary approach, I have begun to focus on technical writing and graphic design for the Web, as well as HTML, CSS, and JavaScript. Creating an infographic for the *STC Salary Database* was a wonderful opportunity to practice using my new technical skills.

In creating the infographic, I followed a process that has worked well for both smaller projects and larger, highly collaborative projects.

The process began with research and analysis, which included studying the database, conducting additional research, consulting the primary source (the Bureau of Labor Statistics), sorting information into types, and making choices about what information to include and exclude.

During the next phases (which I refer to as synthesis and planning), I considered all possible options for the final product. In weighing the options, I considered standard best practices, my specific knowledge and abilities, the technology and other resources I had available, and how I could use these to create the best possible product within the required timeframe. (Synthesis and planning are my favorite phases because they require both creativity and pragmatism.)

The next two phases were a combination of preparation and implementation. I selected the most complex data set (California, because it is the largest data set with the highest numbers) and used that to create a working template, or prototype. Using the most complex information for the prototype generally ensures the same structure and format can also be used for simpler information. I've found that creating a simple prototype and inserting a large amount of complex information nearly always results in significant structural changes that require the creation of a new prototype.

The final phases consisted of review and refinement, in which I assessed the first version of the prototype and made improvements. I've found that it's always best to ask someone unfamiliar with the work and the process to provide feedback at this point, because the mind naturally fills in gaps and corrects inconsistencies to create meaningful patterns (an area of study referred to as Gestalt psychology), and this can make it more difficult for a writer/designer who is intimate with the project to detect potential problems.

Creating this infographic was challenging and fun, and the process gave me an opportunity to use a variety of skills, take a multi-disciplinary approach, and create a product that is informative and (hopefully) delightful!

Does it Pay to Be a Technical Communicator?

BY JONAH SCHWARTZ | *STC Student Member*

I entered this infographic design contest halfway into my Master's program with the intention of having a nice portfolio piece to someday show to an employer. What I did not expect was to win top prize. I built it using only Excel, Publisher, and Photoshop elements, as I did not have access to advanced software and none of the online data visualization tools did what I wanted. Ironically, my limitations with time and resources were apparently my strongest allies.

The *STC Salary Database* is valuable not just for the information it contains, but to me personally for two

reasons: One, it was the conduit to my first professional success. And two, I am new to this field and am thirsty for experience and a stable career. I am in the fortunate position of being able to relocate anywhere that is a good fit, particularly as my sphere of skills and experience grows. This leads to two questions: what do I want to do and where do I want to do it? The *Database* helps answer those based on the salary data it provides for each of those factors.

Rapid-fire questioning and over-thinking are behaviors that I've been sharply criticized for most of my life, but I've been repeatedly assured that they're admirable qualities for technical communicators. If something isn't clear to me, it probably won't be to others. The initial prompt called for the "Average annual salary levels for technical communicators in the US geographies with the top 10 concentrations of tech comm jobs." But what is meant by geographies? Is it states, cities, or metro areas? The Database has all three. Also, while I know what "concentration" means, that word doesn't appear anywhere in the document, thus I had to clarify—and not assume—what that referred to.

Once those questions were answered, I simplified the question to as few words as possible, then created a wireframe sketch of how I wanted my design to look. I quickly learned that the free online data visualization tools didn't do what I needed and had to teach myself how to manipulate Excel and Publisher to match my wireframe; this ultimately made me a more powerful user. After that, I merely agonized over every minute detail until I submitted it. This process necessitated external feedback from a few STC colleagues and classmates to ensure my design suited *their* needs, both aesthetically and functionally.

All of my victories seem to be happening at once. This summer I began an internship at a large company doing exactly what I've always wanted to do and it's just as thrilling and rewarding as I hoped it would be. I'm happy to finally be part of this field.

Congratulations to Tina and Jonah!

Nomination Process Opens for STC Academic Awards

STC RECOGNIZES INDIVIDUAL member achievement through several award programs. Below is information on the academic award programs and their deadlines.

Sigma Tau Chi and Alpha Sigma Honor Societies

STC sponsors two honorary societies for students, and this year the criteria for each have changed.

Membership in STX is an honor given to students enrolled in a program in technical communication, who have a cumulative grade point average of 3.5 or above, are *exemplary* in participation in STC, and demonstrate a potential for *significant* contribution to the profession.

Membership in AS is an honor given to students enrolled in a program in technical communication who have a cumulative grade point average of 3.5 or above, demonstrate *active* participation in STC, and have the potential to contribute to the profession.

Nominations are due by **30 November 2016**. Contact: Russ Hirst (*rkh@utk.edu*).

Jay R. Gould Award for Excellence in Teaching Technical Communication

The Jay R. Gould Award honors the distinguished teaching career of Professor Gould and celebrates true academic mentorship, demonstrated by the personal and professional concern that great teachers extend to their students beyond the classroom.

The Gould award nominating committee is seeking nominees for the award. To be eligible, a nominee must have been a member of STC for at least 10 years and must have been involved in postsecondary education for at least 15 years. Current STC board members and members of the Gould award nominating committee are not eligible.

Nominations are due by **15 October 2016,** with candidate applications due by **15 November 2016**. Contact: Kirk St.Amant (*kirk.stamant@gmail.com*).

Ken Rainey Award for Excellence in Research

The Ken Rainey Award honors the distinguished research contributions of Dr. Rainey, a professor at Southern Polytechnic State University and an STC Fellow who produced major research studies that continue to provide ongoing benefit to both practice and teaching in the field of technical communication.

This award honors research that has made positive, significant contributions to technical communication practice and teaching. One award will be given each year to an STC member who has conducted a lifetime of quality research in the field or has completed a single high-quality empirical study or a set of related high-quality studies.

To be eligible for the award, a nominee must have been a member of STC for at least one year.

Nominations are due by **4 November 2016**. Contact: Ann Blakeslee (*ann.blakeslee@emich.edu*).

For more information on all of these awards and nomination forms, see *www.stc.org/membership/recognition/awards.*

School's out for the summer, but STC Online Courses are up and running!

Register by 5 September 2016 for any 2016 STC online course and receive 10% off your registration. Visit *www.stc.org/education/online-education/certificate-courses* for more information. Contact *education@stc.org* to take advantage of this offer! One STC online course provides six CEUs toward CPTC currency.

Technical Editing Foundations

Li-At Rathbun/Ruttenberg, Technical Editor, Yardi Systems

16 August-20 September 2016, Tuesdays

10:00-11:00 AM EDT (GMT-4)

TechComm 201

Leah Guren, Owner/Operator, Cow TC

31 August-5 October 2016, Wednesdays

11:00 AM-12:30 PM EDT (GMT-4)

Instructional Design for Technical Communicators

Saul Carliner, Associate Professor of Educational Technology, Concordia University

8-29 September 2016, Thursdays

Noon-1:30 PM EDT (GMT-4)

Technical Communication Manager

Saul Carliner, Associate Professor of Educational Technology, Concordia University

6 October-10 November 2016, Thursdays

Noon-1:30 PM EST (GMT-5)

Writing for Localization: Hands-On Workshop and Best Practices

Lisa Pietrangeli, Managing Partner, 36Software

12 October-16 November 2016, Wednesdays

11:00 AM-12:30 PM EST (GMT-5)

Associate Fellows: Complete Your Fellow Applications by 1 October 2016

EACH YEAR, THE STC Fellows Nominating Committee invites STC Associate Fellows who have held that rank for three years or more to submit an application to the committee for possible elevation to the rank of STC Fellow. This honor recognizes members' significant achievements in and contributions to the field of technical communication and sustained and significant service to STC. It is the highest honor that STC can bestow upon a member.

If you are an STC Associate Fellow who was inducted to that rank at or prior to the 2012 STC Technical Communication Summit, we invite you to submit an application to the committee. The committee thoroughly reviews each nominee's application, researches and verifies the nominee's qualifications, and contacts the nominee's references. When all evaluations are completed, the committee recommends qualified nominees to the STC Board of Directors for consideration. Those nominees receiving a two-thirds favorable vote from the board will receive the honor as long as their membership is in good standing and they meet the requirements as stated in the guidelines. (If the committee determines that a nominee is not qualified for elevation to the rank of STC Fellow, it will provide a brief explanation of why the nominee does not meet the qualifications.)

To be considered for elevation to the rank of STC Fellow, you must have accomplished all of the following: (1) performed important work and attained distinction in the field of technical communication; (2) done notable original work that has contributed to the advancement of the field; and (3) made significant contributions to the STC and helped to tell STC's powerful story. Length of career, quality of accomplishments, service to the Society, and continuity of achievement are all factors in the selection process.

You can find the application and related information on the STC website at *www.stc.org/membership/recognition/honors*. Send your completed application to the Society office at *stc@stc.org*, with a copy to Larry Kunz at *lk81924@gmail.com* to arrive no later than 1 October 2016. The committee will forward their recommendations to the STC Board, who will consider nominees in January 2017. The Society will recognize new Fellows at the honors reception in May at the 2017 STC Technical Communication Summit in Washingon DC's National Harbor.

For more information, review the Fellows Committee page available at *www.stc.org/membership/recongitions/honors* or contact committee chair.

Please note that there is an administrative fee of $25 that must accompany your application.

Associate Fellow Recommendations Due 15 October 2016

EACH YEAR, STC MEMBERS and communities have the opportunity to recommend senior members for the rank of STC Associate Fellow to the Associate Fellows Committee. This honor recognizes members' achievements in the field of technical communication, contributions to STC, or both.

Any voting member of STC may submit a nominee's application to the Associate Fellows Committee, including those who wish to apply on their own behalf. The committee reviews each nominee's application and contacts the identified references. Based on evaluation of the information collected, the committee forwards nominees to the STC Board of Directors for consideration. Those nominees receiving a two-thirds favorable vote from the board will receive the honor as long as their membership is in good standing and they meet the requirements as stated in the guidelines.

To be considered for selection as an Associate Fellow, the nominee must have been active in the field of technical communication for at least 15 years and have been a member of the Society for at least 10 years, as of the application submission deadline. They must also be members in good standing at the time of the application and at the time of the honors banquet the following May. But, most importantly, the nominee must have significant accomplishments one or more of the following areas: (1) performed important work and attained distinction in the field of technical communication, (2) done notable original work that has contributed to the advancement of the field, or (3) made significant contributions to the Society and helped to tell STC's powerful story.

In August, the STC office and the Associate Fellows Committee will send a message to STC qualifying senior members and Society and community leaders describing the nomination process and the information required for a nominee's consideration by the Associate Fellows Committee. By August, this information will also available on the STC website at *www.stc.org/membership/recognition/honors*. Upon request, the Society office will email community leaders a list of all eligible nominees in their communities. Please email your request to *stc@stc.org*. If you want to submit yourself or a colleague as a nominee for Associate Fellow, please use the Recommendation for Associate Fellow form and refer to the completed sample forms on the STC website.

The Associate Fellows Committee encourages submitters to work with nominees to ensure applications are complete and accurate. Please use e-resources whenever possible so that the committee can check facts, publications, presentations, and the nominee's presence online. It is not the length of the application that will ensure the acceptance of the nominee, but the consistency, variety, and level of work and influence the nominee has had on technical communication and the Society. An online portfolio would be an ideal resource. Remember that this is an STC honor and emphasis will be placed on STC accomplishments.

The committee recommends involving Associate Fellows, Fellows, or members who are experienced in submitting Associate Fellow applications. Also, the committee *strongly recommends* that the submitter be fully convinced that the nominee meets all the criteria for recommendation as an Associate Fellow. Keep in mind that those who attain this honor serve as models of our organization. This honor is not easily attained and those who receive the honor have worked for many years to support the profession and the Society in various ways.

Completed nomination packages must be received by the committee by **15 October 2016.** Send them to the STC office at *stc @stc.org*, with a copy to the committee chair, Brian Lindgren, at *brianjlindgren@gmail.com*. In January 2017, the STC Board of Directors will consider the nominees forwarded to them by the Associate Fellows Committee. In May, at the 2017 STC Technical Communication Summit in Washington DC's National Harbor, the Society will recognize the new Associate Fellows at an honors reception.

For more information, refer to the Associate Fellows Committee Web page at *www.stc.org/membership/recognition/honors* or contact Brian Lindgren at *brianjlindgren@gmail.com*. Keep in mind that some changes have taken place over the past couple of years and the website and guidelines reflect the changes noted below.

Qualifying senior members can self-recommend—however, the application must be endorsed by two senior members, one of whom must be a community leader or hold an honorary STC rank. Endorsers cannot also serve as a reference for the same nominee. No member of the STC staff, the STC Board of Directors, or the Associate Fellows Committee can serve as submitter, reference, or endorser.

Please note that there is a one-time, $25 administrative fee.

How Will Your Digital Content Become Augmented Reality Experiences?

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BY CHRISTINE PEREY | *Guest Columnist*

This issue's guest columnist is Christine Perey, a specialist in augmented reality and its use in enterprises. Christine and Ray both sit on the OASIS ARIP (Augmented Reality in Information Products) Technical Committee.

AUGMENTED REALITY (AR) has enormous potential to impact our lives and businesses in positive ways. I'm firmly convinced that to reach that potential, it must be open and AR systems must interoperate. To promote this set of values I'm leading a grassroots community of people—the AR Community—dedicated to advancing open and interoperable augmented reality (*www.perey.com/ARStandards*).

It's taken over a decade for our content development processes and enterprise content management systems to transition from their prior focus on print as the medium for delivery to today's digital delivery systems.

The journey from print to digital has been slow and rocky. Technology silos for content can be inexpensive to implement but are known to introduce barriers to growth and evolution. In response to these barriers, standards for digital content preparation, publishing, and navigation have emerged. Once adopted, content standards reduce interoperability issues with different CMS, operating systems, and screen types (e.g., laptops, smartphones, tablets, etc.). But there remain many proprietary systems in use. Working around and between these systems to produce the best user experience are part of the technical communicator's special "sauce."

The Sauce Needs to Evolve

Nothing stays constant. How will our existing systems produce content for augmented reality experiences and deliver digital content in context? How will digital content in your existing CMS appear perfectly synchronized and overlaid on the physical world? How will the latest work instructions and troubleshooting guides be available without you or the user needing to do anything special in advance?

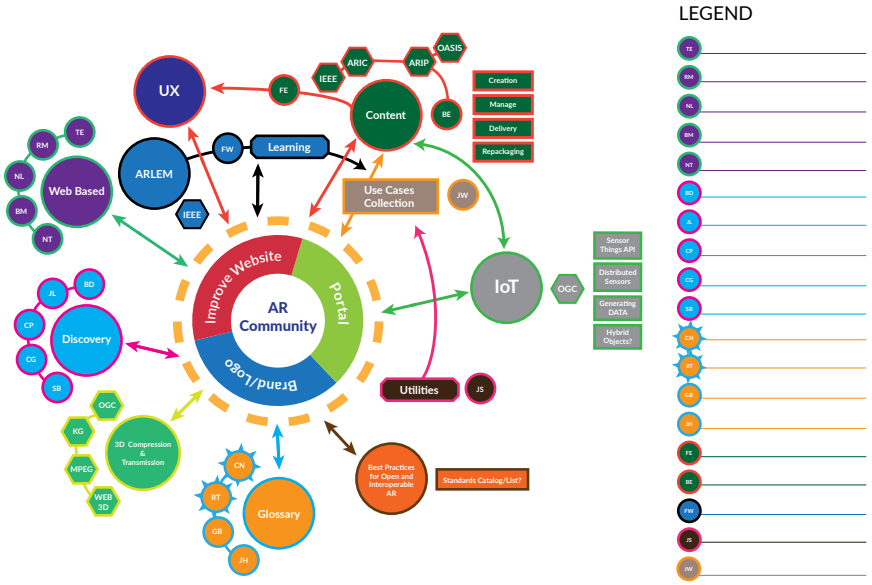
The short answer is augmented reality, but its use to present information in context is going to require significant effort for everyone in the near term. It will require developing new processes and learning the features of all these new delivery devices. Before digital enterprise content can flow to an array of smart glasses and other form factors (e.g., smart helmets) in AR formats, your special sauce is going to need many new ingredients.

Standards Are One Ingredient

As with digital content delivery today, standards can reduce interoperability barriers for augmented reality. They are a means to an end: the goal is to lower barriers to making digital content available, thus improving productivity.

We must avoid altogether or, if they are necessary to get started, reduce reliance on proprietary technology silos for augmented reality. In the AR community, we share a set of principles—a school of thought—that seeks to identify and to adopt alternatives to proprietary formats and interfaces for augmented reality.

Standard Deviation is a column all about standards—a subject that affects most of our lives, but that we seldom think about. As the title implies, I want to keep the conversation lively and engaging. I'm always looking for guest columnists, and we welcome feedback with comments or requests for standards-related topics to cover. Email me at *rgallon4stc@culturecom.net*.



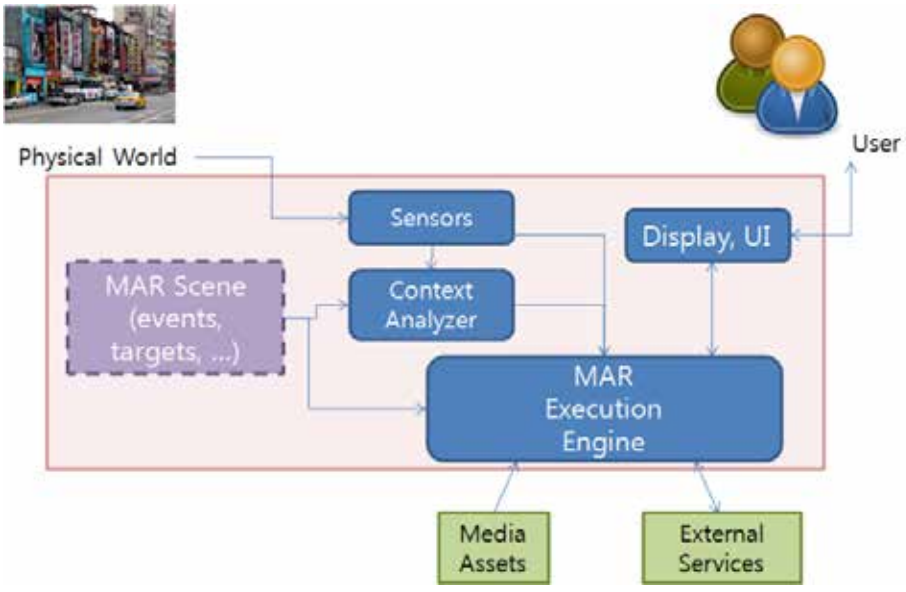
The Role of Standards for Content in AR Experiences

Some of those alternatives to proprietary systems are going to be based on international standards. For five years the community members have been monitoring the evolution of all kinds of standards relevant to AR (*www.perey.com/ARStandards/existing-standards*). Since augmented reality involves both software and hardware, we are tracking the standards for how components fit together physically (e.g., the MIPI standards for camera and sensor connectivity), and the APIs for accelerating sophisticated algorithms with semiconductors (e.g., the Khronos Group APIs).

There are also existing and new standards for AR content presentation. For example, the Open Geospatial Consortium publishes the ARML 2.0 standard, an XML-based data format, targeted for mobile AR applications (*www.opengeospatial.org/projects/groups/arml2.0swg*). The Motion Picture Experts Group publishes the AR Application Format (ARAF) now in its second version (*http://mpeg.chiariglione.org/standards/mpeg-a/augmented-reality-application-format/wd-30-araf-2nd-edition*). There is also the work of the IEEE AR Learning Experiences Model (ARLEM) that is developing schemas and concepts for how to describe the physical world and the actions of people in AR (*http://arlem.kmi.open.ac.uk/*). The OASIS AR in Information Products Technical Committee is also studying where standards can support technical communicators (*www.oasis-open.org/committees/arip*).

The standards and technologies are going to come from many different places and groups. This complexity is somewhat less daunting to understand once you have studied and are able to use the Mixed and Augmented Reality Reference Model that an ISO/IEC JTC 1 Joint Ad Hoc group has developed (*www.perey.com/ARStandards/MAR-Reference-Model-March-22-2016.docx*).

When you embark on your new sauce for digital content preparation, learn and choose those options most suitable for your existing authoring workflows and the use cases for which you aim to create augmented reality support. Some of those options will need you to develop a new approach, and perhaps your special sauce will, one day, become a standard for those who follow.



CHRISTINE PEREY *is an industry analyst and active leader of new technology industry initiatives. In 1991, she saw that it would be possible to improve human communication on personal computing devices with audio and video. She became the editor and publisher of the QuickTime Forum, the first publication for QuickTime developers. She worked as a consultant to the videoconferencing and streaming media industries for over a decade until, in 2006, realized that the future would lead to augmented reality. She has started and led many communities of interest. She is an advocate for interoperable augmented reality and serves on numerous standards working groups including as co-chair of the IEEE P1589, Augmented Reality Learning Experience Model (ARLEM). She is founder and currently the executive director of the AR for Enterprise Alliance (AREA), the only global member-based organization accelerating AR adoption in enterprise. When not traveling, Christine lives and works in Montreux, Switzerland.*

The "Cover Up" of Common Knowledge

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BY MEGAN GEHRKE | *Guest Columnist*

ALICE HARDY IS a technical editor at Lambert Research Firm, a small for-profit agency that specializes in conducting and writing research reports for clients, often large companies in their local area. Lambert Research Firm is frequently hired to research environmental, health, legal, and political issues for clients, and write up reports on the issues for clients to buy and use for their own purposes. Clients frequently use materials written by Lambert Research Firm in public service announcements, advertising and fundraising campaigns, and in presenting legislation to various branches of local and federal government. As a technical editor, Alice is not responsible for conducting research herself, but instead edits the written reports by her coworkers prior to submission to the various companies with which Lambert Research Firms contracts.

Rebecca Jones is a senior writer at Lambert, specializing in writing copy on environmental health risks. As a formal environmental lawyer, within Lambert Research Firm and the community at large, Rebecca is regarded as an authority on the subject and well respected. She has recently completed a report on waste disposal and its effects on human drinking waters, written for the Environmental Protection Agency (EPA). This document was one of the largest contracts Lambert Research Firm had ever received, and many within the company hope it would be a gateway into other government projects of comparable size. Although Lambert Research Firm has been successful locally, the company has had little opportunity to exhibit itself on a national level. Alice has been tasked with copyediting Rebecca's report, set to be released to the EPA in four days. The document has already been edited by two of Alice's colleagues for content and clarity; Alice is responsible for providing a final proof on format and grammatical concerns before it is approved by her supervisor and released to the EPA for use. The bills for the document have already been paid by the agency and everything is in place for the research to be supplied to them on time.

Being a relatively new hire at Lambert, Alice was delighted to be given such a great opportunity in looking over one of the largest contracts the company had received to date. In preparation, Alice Googled "Waste disposal and human drinking water" to get a general sense of the issues. However superficial it might be, she figured something was better than nothing; she did not want to mess up this great editing opportunity by offering a correction that unintentionally revealed her ignorance on the subject. Alice did not feel she was an expert in the area, but was learning that astute editors, like those mentoring her in the workplace, do not need all of the context in order to correct grammatical issues. However, to be safe, Alice spent two hours reading online articles and links. After conducting her own mini-research session, Alice returned to the document and began editing, finding minimal errors. It was obvious

This column features ethics scenarios and issues that may affect technical communicators in the many aspects of their jobs. If you have a possible solution to a scenario, your own case, or feedback in general, please contact Derek G. Ross at *dgr0003@auburn.edu.*

Editorial Note

Many of us have been taught since our earliest school days that we need to cite any information in our work that is not "common knowledge." Despite our teachers' best efforts, and our own acknowledgement of institutional codes of ethics, however, plagiarism remains an omnipresent threat in our highly mediated, Google-ready, knowledge economy. As technical writers, we are often required to fill in the blanks on reports we write or edit, and many of us turn to the Internet for on-the-fly content. This ready access to complex information leads to a nagging question: What really constitutes "common knowledge?"

In this month's Ethics column, Megan Gehrke takes us through a case that may sound familiar to many of us—what do we do when we're part of a team, the clock is ticking, and we know that some of those all-important fill-ins and clarifications aren't quite right? What would you do?

As always, we welcome your responses. Let us know your answers to the questions we've posed, your thoughts on our roles as technical communicators in general, or send us your own ethics cases or column ideas. Please send your responses to derek.ross@auburn.edu. *Responses will be printed in an upcoming issue of* Intercom *as space permits.*

—Derek G. Ross, Column Editor

that the other two editors had done a thorough job. However, as she proofed Rebecca's report, Alice began to recognize certain parts of the text. Here and there, lines jumped out to Alice as being something she had previously read. Searching for footnotes and in text citations, Alice found none.

The report contained an extensive list of citations, research which had taken Rebecca months, all of which was correctly documented. However, as she kept reading, Alice continued to find lines she distinctly remembered from what she read online before beginning her edits. Believing herself to be over-reacting or remembering incorrectly, Alice revisited her search history and pulled up the articles in question. Clear as day, the lines had been lifted. *Was this intentional on Rebecca's part? Had she forgotten her quotation marks? Or had the research been slipped in purposefully to bulk out the document under a tight deadline?*

Alice finished her copyedit and review of the document that afternoon, finding minimal changes to report; she went back to the pages troubling her conscience. After a second review, Alice could say for certain lines were lifted and inserted in the text without documentation or citation. This was against Lambert's plagiarism policy, clearly outlined in the company handbook. "Because we are built on a foundation of promoting ethical research practices and writing to all our clients, all pieces produced by Lambert Research Firm employees should be nothing less. Plagiarism and unethical research methods will not be tolerated." Alice was interrupted by a sudden knock on her cubicle wall; startled, she shut the report and looked up to see Rebecca standing in the entrance.

"Done with that?" Rebecca asked. "Boss man is breathing down my neck to have it submitted a day early to make the best impression possible. I'll take it now if you are."

Sweating, Alice responded, "I actually need a bit more time." As an afterthought, she added, "I will get it to him by 3 today though. Thanks for checking in."

"All right, glad to hear it." Rebecca replied, and walked away.

With her stomach twisted in a knot, Alice contemplated her options. She was, after all, only

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supposed to be providing a copyedit on the text. It had been approved by two other editors and Alice was sure a plagiarism issue would not have slipped past them. Reporting the issue would delay the project, and could potentially cost Lambert Research Firm the entire contract, and future government reports the firm was counting on receiving after the publication of the water report. However, association with a plagiarized report would damage the Firm's credibility and potentially hurt business as well. Alice decided to ask one of the other editors if they had noticed the potential plagiarism issue.

Walking into Maureen's office, Alice presented her with the lines she had noticed in Rebecca's draft. Maureen, looking surprised, and stated, "Oh yeah, I saw those, too, but with these huge research reports, no one ever reads them close enough to get every footnote in there. It's fine as is; if anything comes of it, we can cool the flames by claiming it was common knowledge or something. Don't sweat it; this sort of thing happens all the time." With that, Maureen turned back to her computer, essentially dismissing Alice from the room.

Feeling even more unsettled, Alice returned to her office and closed the door. Although she had been assured it wasn't an issue, she felt uncomfortable signing her name on the edited draft as being complete and accurate.

Should Alice alert her boss to the copied lines she found in the text? Is it better or worse to approach Rebecca directly, based on her authority in the office? How did the other editors miss this mistake in the other reads of the text? Is Lambert Research Firm ethically bound by their policy on plagiarism to suspend the report and project until a conclusion has been reached, no matter the business obligations? What should Alice's next move be?

Plagiarism in the Headlines

When many technical communicators think of plagiarism, their minds harken back to the syllabi of their college days, documents explicitly detailing proper citation methods and the steep consequences should they be ignored or overlooked. With this, it is too easy to consider plagiarism as housed and limited to the ivory tower and academia. In reality, the consequences can increase in the workplace, costing companies and technical communicators business, customer faith, and professional reputation.

The Globe and Mail, a leader in Canadian national and international news, was cited in April 2016 for failing to cite multiple sources within the same column. The Editor-in-Chief David Walmsley issued a public apology, stating that the column fell short of their production standards and steps will be taken to ensure the author will not make such a mistake again (Stead, 2015). Similarly in 2002, historical author Stephen Ambrose got himself into hot water for plagiarizing material in his book *The Wild Blue*, opening an investigation that found further issues of plagiarism in his other published works (Kirkpatrick, 2002). In the same year, Doris Kearns Goodwin faced similar allegations, a headlining story that trickled out in the media over several months, with each iteration deepening the credibility gap developing between her and her audience (Lewis, 2002). In both of these instances, it was found that plagiarism was not a one-time mistake, but rather a consistent lack of regard for ethical documentation practices. In the above ethical case, perhaps Alice has unearthed just one instance in a long history of plagiarism that has gone unchecked at Lambert Research Firm for years. Does this increase her obligation to report the inconsistency in research attribution?

Although the plagiarism violations of technical communicators may not be splashed across the nightly news in the same manner that the downfalls of pseudo-celebrity writers are, this isn't to say that they won't hold just as serious consequences for the writers and companies involved. Plagiarism and unethical research practices in the workplace undermine business conducted with consumers, planting seeds of doubt in the minds of partners and clients as to an organization's credibility. Although a college professor with a red pen hovering over each citation is a thing of most technical communicator's pasts, a dutiful and ethical technical communicator will write with the belief that the same examining eye might be searching every document for exact, accurate, and ethical research and writing practices.

How can technical communicators ensure proper citation practices in their workplace when it might not be anyone's assigned job to oversee? How can the ethics of plagiarism be communicated successfully to writers and communicators working outside of academia?

MEGAN GEHRKE *is a graduate student in Boise State University's technical communication program. She works on campus as a graduate writing center consultant, as well as for HP Inc. as a technical writer on the customer education design team. She will be presenting in Fall 2016 at the International Writing Center Association's annual conference on how creating online communities and virtual spaces for writing center consultants can advance tutoring pedagogy. Her research and career interests center on visual rhetoric; document, Web, and presentation design; and publication management.*

REFERENCES

Kirkpatrick, D. D. 5 Jan. 2002. 2 accuse Stephen Ambrose, popular historian, of plagiarism. *The New York Times*. Retrieved from *www.nytimes.com/2002/01/05/national/05AMBR.html*.

Lewis, M. 27 Feb. 2002. Doris Kearns Goodwin and the credibility gap. *Forbes*. Retrieved from *www.forbes.com/2002/02/27/0227goodwin.html*.

Stead, S. 25 Apr. 2015. Public editor: Prose must be attributed. *The Globe and Mail*. Retrieved from *www.theglobeandmail.com/community/inside-the-globe/public-editor-prose-must-be-attributed/article29749706/*.

Mark Your Calendar

Organization Events Across the Globe

F.Y.I. lists information about nonprofit ventures only. Please send information to *intercom@stc.org.*

1 19-23 Sept
The **Human Factors and Ergonomics Society** will hold its Annual Meeting 19-23 September at the Washington Hilton, Washington, DC.
HFES
https://hfes.org/web/HFESMeetings/2016annualmeeting.html

2 2-5 Oct
The **IEEE Professional Communication Society** will hold its annual conference, ProComm 2016, 2-5 October at the University of Texas, Austin, TX.
IEEE Professional Communication Society
http://sites.ieee.org/pcs/future-locations/

3 5-8 Oct
The **American Medical Writers Association** (AMWA) will hold its annual Medical Writing & Communication Conference, 5-8 October at the Sheraton Denver Downtown Hotel, Denver, CO.
AMWA
http://www.amwa.org/content.asp?contentid=74240- 238-0940

4 6–8 Oct
The **Council for Programs in Technical and Scientific Communication** (CPTSC) will hold its annual meeting in Savannah, GA, at the Georgia Conference Center.
CPTSC
www.cptsc.org/annual.html

5 23-25 Oct
The **Public Relations Society of America** (PRSA) will hold its 2016 International Conference, 23-25 October at the JW Mariott in Indianapolis, IN.
PRSA
https://www.prsa.org/Conferences/InternationalConference/index.html

6 2-5 Nov
The **American Translators Association** (ATA) will hold its 57th Annual Conference, 2-5 November, at the Hyatt Regency in San Francisco, CA.
ATA
http://www.atanet.org/conf/2016/
+1-703-683-6100
ata@atanet.org

* STC-related event

Being Prepared to Communicate

BY NATHANIEL LIM | *STC Fellow*

WHEN I AM NOT TECHNICAL WRITING, I volunteer for the Boy Scouts of America. My current role is behind the scenes, not well-known, and a step away from working with youth. As a commissioner, I support adult volunteers by making sure they have what they need to work effectively with the youth in their units. I visit each of my assigned troops about once a month, offer suggestions for improvement if needed, and report how each troop is doing to my local district.

Like many adult volunteers, I started as a youth. At 11 years old, I joined because my friends joined. We attended weekly troop meetings, camped, hiked, swam, and served our community. Most kids do not necessarily join because they want to be good citizens. They join because it is FUN. In my late teens, I gradually moved into positions of leadership, teaching, and project planning, all in a safe environment. Shortly after becoming an Eagle Scout, I told all this to the Scout Executive of my local council. He said that this is the way it is supposed to happen. Scouting has been called a game with a purpose. This is why I give back to Scouting: it builds character, promotes citizenship, and it is still fun.

Behind the uniform and merit badges

Scouting is much more than just going to summer camp and doing good turns. It is very big on training for youth and adults. Ninety percent of all the leadership skills I ever learned came from the Boy Scouts. Its youth and adult leader training program is incredibly well-developed, drawing from 21st century theories from reputable leadership experts. Even though they have syllabi for all their training programs, some custom instructional design is still allowed. When I am a trainer in Scouting, I make the presentations my own, often interjecting personal stories and anecdotes to drive home a concept.

Like any volunteer organization that requires mass communication, there is always opportunity to contribute my writing skills. I served as a copy editor for the daily newspapers of the 100th anniversary National Jamboree in Fort A.P. Hill, Virginia, and the 100th anniversary National Order of the Arrow Conference in East Lansing, Michigan. (The Order of the Arrow is Scouting's National Honor Society.) At the jamboree we published the fifth largest newspaper in Virginia for 10 days—enough copies for 50,000 in attendance.

Nathaniel Lim holding the Boy Scouts newspapers he edits

How has scouting helped me be a better technical communicator?

The Scout Law has twelve points. I am sure all of them play into technical communication somehow but will expound only on the first three:

Trustworthy: The document I am publishing has to be correct. Do the writers trust me? Yes, they do. Therefore, what I am writing better be accurate and precise.

Loyal: I have a commitment to completing the document and getting it to the reader. Loyalty also enabled me to get stay active in STC as a volunteer. The word "stay" is important here. Many members will join STC for a while but leave when they no longer see it benefitting themselves. To paraphrase a famous quote: "Ask not what STC can do for you. Ask what you can do for STC." When I say I will do it, I will.

Helpful: I want to help the reader learn and accomplish the task. Does the document fulfill its purpose? Does it realize its potential? Is the world a better place because someone read what I wrote?

The Boy Scouts of America changed my life. I do not think I would have become a STC Fellow without it. Similar to STC, I have made many friends in Scouting locally and nationally. It is a vast organization to network, learn new skills, and make a difference in the lives of youth.

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